CLAIMS

What is claimed is:

1. A method of terminating two or more constituent encoders of a turbo encoder employing a turbo code, the method comprising the steps of:

generating tail input bits at each of two or more constituent encoders, including the step of:

deriving the tail input bits from each of the two or more constituent encoders separately for each constituent encoder from a contents of shift registers within each of the two or more constituent encoders, after an encoding of information bits by the two or more constituent encoders; and

puncturing one or more tail output bits such that 1/R tail output bits are transmitted for each of a plurality of trellis branches, wherein R is a turbo code rate employed by the turbo encoder during an information bit transmission.

2. The method of Claim 1 wherein the step of puncturing the tail output bits further comprises the step of:

transmitting, during trellis termination, the tail output bits only if they are sent from an output branch of one of the two or more constituent encoders that is used during information bit transmission.

3. The method of Claim 2 wherein the step of transmitting comprises the steps of:

transmitting tail output bits from a first X(t) output branch and from a second $Y_0(t)$ output branch, when the turbo encoder is employed as a rate 1/2 turbo encoder, during trellis termination of a first of the two or more constituent encoders; and

transmitting tail output bits from a third $X'(t)$ output branch and from a fourth $Y_0'(t)$ output branch, when the turbo encoder is employed as a rate 1/2 turbo encoder, during trellis termination of a second of the two or more constituent encoders.

4. The method of Claim 2 wherein, when the turbo encoder is employed as a rate 1/3 turbo encoder, the step of transmitting comprises the steps of:

transmitting tail output bits from a first $X(t)$ output branch, and a second $Y_0(t)$ output branch, during trellis termination of a first of the two or more constituent encoders;

re-transmitting tail output bits from the first $X(t)$ output branch during trellis termination of the first of the two or more constituent encoders;

transmitting tail output bits from a third $X'(t)$ output branch and from a fourth $Y_0'(t)$ output branch, during trellis termination of a second of the two or more constituent encoders; and

re-transmitting tail output bits from the third $X'(t)$ output branch during trellis termination of the second of the two or more constituent encoders.

5. The method of Claim 2 wherein, when the turbo encoder is employed as a rate 1/4 turbo encoder, the step of transmitting comprises the steps of:

transmitting tail output bits from a first $X(t)$ output branch, a second $Y_0(t)$ output branch, and a third $Y_1(t)$ output branch during trellis termination of a first of the two or more constituent encoders;

re-transmitting tail output bits from the first $X(t)$ output branch during trellis termination of the first of the two or more constituent encoders;

transmitting tail output bits from a fourth $X'(t)$ output branch, a fifth $Y_0'(t)$ output branch, and a

sixth $Y_1'(t)$ output branch during trellis termination of a second of the two or more constituent encoders; and

re-transmitting tail output bits from the fourth $X'(t)$ output branch during trellis termination of the second of the two or more constituent encoders.

6. The method of Claim 1 wherein the step of generating the tail input bits is performed simultaneously at each of the two or more constituent encoders, wherein tail input bits from a first constituent encoder are generated at same clock cycles from a second constituent encoder.

7. The method of Claim 1 wherein the step of generating the tail input bits is performed consecutively at each of the two or more constituent encoders, wherein tail input bits from a first constituent encoder are generated at different clock cycles than tail input bits from a second constituent encoder.